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Conference Abstract

Sharing the Decision Process Framework to Identify Well-supported Records of Mammal Species-occurrence in Mozambique

Isabel Queirós Neves[‡,§], Maria da Luz Mathias[‡,|], Cristiane Bastos-Silveira[§,¶]

‡ Departamento de Biologia Animal, Faculdade de Ciências da Universidade de Lisboa (FCUL), Lisboa, Portugal
§ Museu Nacional de História Natural e da Ciência (MUHNAC), Universidade de Lisboa, Lisboa, Portugal
| Centre for Environmental and Marine Studies (CESAM), FCUL, Lisboa, Portugal
¶ Natural History and Systematics Research Group - cE3c, FCUL, Lisboa, Portugal

Corresponding author: Isabel Queirós Neves (i.queirosneves@gmail.com)

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Abstract

Conservation research and policies tend to be significantly restricted wherever relevant data on biodiversity is sparse, scattered or non-curated. Thus, the usefulness of occurrence data, for the study of biodiversity, depends not only on the availability but also on data quality. Notwithstanding the increase in the global availability of primary biodiversity data, they have numerous shortfalls, from incomplete or partially erroneous documentation to spatial and temporal biases (Hortal et al. 2015, Aubry et al. 2017). Also, many non-digitized specimen collections, scientific publications and grey literature are locked as printed or digital publications.

We integrated existing knowledge, from dispersed sources of biodiversity data, namely Global Biodiversity Information Facility (GBIF), natural history collections, wildlife survey reports, species checklist and other scientific literature. This procedure allowed an update of Mozambique's checklist of terrestrial mammals (Neves et al. 2018). Despite the potential from digital data to overcome gaps of knowledge, a relevant constraint on creating or updating species checklist is the dificulty to access spatially-disperse collections and examine every specimens upon which occurrences are based. To partly overcome this

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impediment, we developed a species selection process for specimen data from GBIF and museums (Fig. 1). The aim was to categorise the species detected in more than one data source as species with the well-supported occurrence. In addition to the number of collectors, we also accounted for the number of records collected and presented in Smithers and Tello (1976), the last checklist produced for Mozambique' mammals.

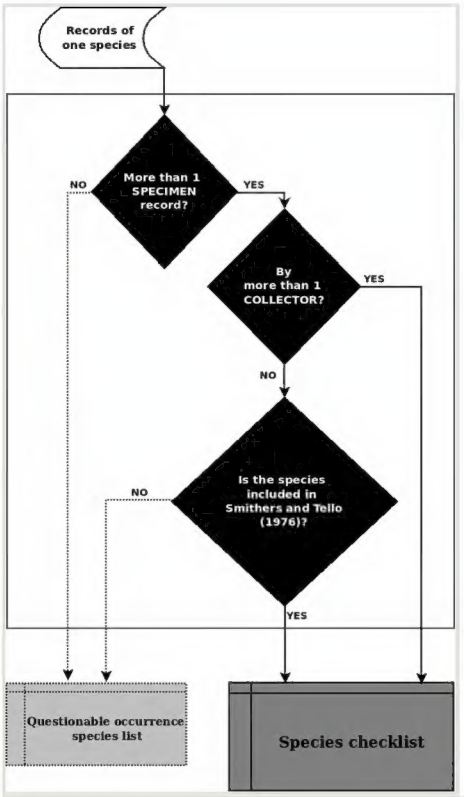

Figure 1.
Species selection process framework - decision tree followed to establish whether the report of a species for the country was well-supported (as in Neves et al. 2018).

A species-occurrence record was considered well-supported and included into the species checklist when was:

1. independently recorded by different collectors or
2. recorded by a single collector but listed in Smithers and Tello (1976).

An additional list was produced which contained species with questionable occurrence in the country. Species entered this "questionable occurrence" list when they were:

1. not listed in Smithers and Tello (1976), and a single record supported its presence in the country;
2. not listed in Smithers and Tello (1976) and multiple records exist, but were all cited by a single author; or
3. registered with a single record in Smithers and Tello (1976).

We compiled more than 17000 records, resulting in a total of 217 species (14 orders, 39 families and 133 genera) with supported occurrence in Mozambique and 23 species with questionable reported occurrence (Table 1). The proposed approach for species selection can be adapted and function as a powerful tool to update species checklists of countries facing similar lack of knowledge regarding their biodiversity. The capacity to pinpointing

species and specimens in need of occurrence and taxonomic re-evaluation is of great value to optimise collection's study and to boost collaboration between curators and researchers. Lastly, considering that most records integrated are from European and North American institutions, this work would significantly improve with the integration of data from African institutions. Therefore, an effort should be made to make these essential collections accessible online.

Table 1.

Summary description of the species checklist of terrestrial mammals reported for Mozambique (Queirós Neves et al. 2018). The table shows, per mammal order, the total number of species in the Species checklist ('Total'), the number of threatened species ('Threatened Species'), the number of species reported with less than 10 records ('< 10 records'), the number of species reported from Mozambique after the year 2000 ('Recent Report'), the number of species with "Questionable Occurrence". Species are considered 'threatned species when are classified as 'Vulnerable', 'Endangered' or 'Critically endangered' following the International Union for Conservation of Nature and Natural Resources (IUCN) Red List (2017).

Order	Total	Threatened Species	< 10 records	Recent Report	Questionable occurrence
Afrosoricidae	2	1	1		-
Artiodactyla	25	3	1	24	3
Carnivora	33	4	6	21	-
Chiroptera	71	1	41	58	8
Eulipotyphla	9		3	7	4
Hyracoidea	3		1	2	-
Lagomorpha	4		2	2	-
Macrocelidea	5			2	1
Perissodactyla	3	1		3	-
Pholidota	1	1		1	1
Primates	8		1	7	-
Proboscidea	1	1		1	-
Rodentia	51	1	17	33	6
Tubulidentata	1			1	-
Total	217	13	73	162	23

Keywords

Species checklist; Africa; Natural History Collections; Primary biodiversity data; Data quality

Presenting author

Cristiane Bastos-Silveira

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